Wildlife Populations: Colonial-nesting Waterbirds

Colonial-nesting waterbird is a collective term used to refer to a large variety of different species that share two common characteristics, which are the tendency to gather in large assemblages during the nesting season; and their procurement of most of their food, mainly fish and aquatic invertebrates, from the water. Colonial waterbirds have attracted the attention of scientists, conservationists, and the public since the turn of the century when plume hunters nearly drove many species to extinction. Although the populations of many species rebounded in the early part of the 20th century, major losses and alteration of coastal wetlands still threaten the long-term sustainability of many colonial waterbirds.[1]

For more than three decades, DEP's Division of Fish and Wildlife has monitored the nesting populations of colonial-nesting waterbirds through a combination of ground and aerial surveys. These birds are important predators, feeding near the top of the food chain on a wide variety of fish and on marine invertebrates such as small crabs and mollusks. As relatively long-lived, high-level predators, these waterbirds serve as valuable indicators of environmental quality, including resource abundance and health; levels of toxic substances, such as organic contaminants and heavy metals; and levels of human disturbance. These birds can be divided into two general groups: long-legged wading birds and sea birds.

Long-legged Wading Birds

Background

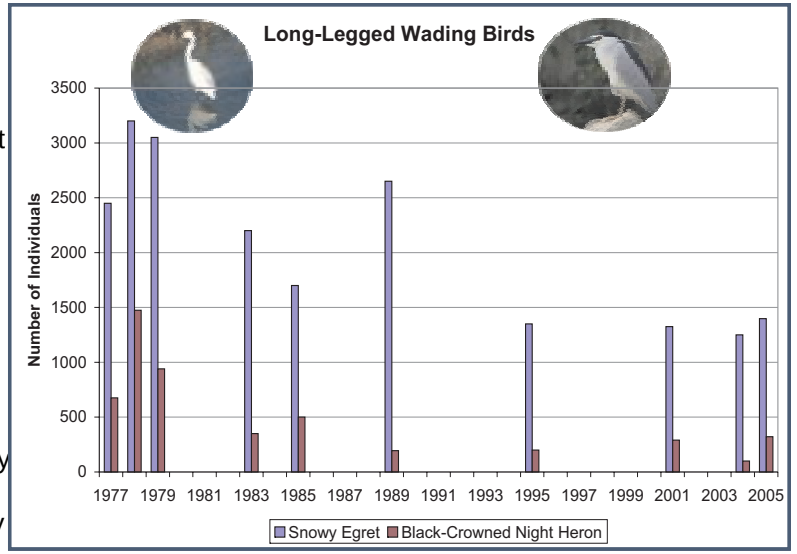
Long-legged wading birds are prominent members of estuarine ecosystems. Snowy egrets and black-crowned night herons are particularly good indicators of estuarine systems because they both feed and nest in the Atlantic Coastal ecosystem. The snowy egret (*Egretta thula*) can be distinguished from the great egret by its smaller size, its black bill, and yellow feet; the snowy egret can be spotted from spring through fall, often along the edge of the water in a marsh.

The black-crowned night-heron (*Nycticorax nycticorax*) is a stocky heron with plumage that is gray and white with a distinctive black cap and a pair of white plumes that extend from the back of the head. They usually nest colonially among reeds in marshes, or up to 160 feet above the ground in trees. Their spring migration generally occurs from mid-February through mid-May. Fall migration occurs from mid-July through October. The black-crowned night-heron is widely distributed throughout North America, South America, Eurasia and Africa.[2]

Trends

Long-term trends for the period for these species (see figure below) reveal that both species' populations have declined since 1985. These figures are indexes of the populations, not actual population estimates. The aerial survey underestimates populations, especially for those birds with dark plumage. However, the protocol is consistent and, and the numbers can be used to establish long term trends.

In the past, populations of the cattle egret and the yellow-crowned night heron were also used for long-term trends, however though still tracked, it has been concluded that these species are not reliable environmental indicators for coastal marsh ecosystems. The cattle egret is more closely associated with upland pasture habitats than with coastal marshes, and as dairy farming in New Jersey has declined, so has the availability of this preferred habitat. Yellow-crowned night herons are increasingly found nesting in relatively small, single-species colonies (e.g. three or four nesting pairs) in the midst of human development. Therefore the sampling protocol that relies on surveys of large mixed-species long-legged wading birds nesting colonies may no longer provide a reliable indicator of the population of the yellow crowned night heron.[3]



Outlook and Implications

Although the data suggest that the populations of the snowy egret and black-crowned night heron have stabilized since 1995, the data also show that the populations have failed to recover from a major decline that occurred between 1978 and 1983. Scientists have found that, like New Jersey's populations, snowy egrets and black-crowned night herons are declining along the Atlantic Coast. Some data suggest these population decreases may be the result of pesticides and other environmental contaminants. Nesting success of all colonial waterbirds can be severely reduced by specific types and excessive levels of human activity. The use of personal watercraft (e.g., Jet Skis) is a particular concern, as these vehicles interfere with waterbird feeding and nesting activities.

More Information

http://www.assateague.com/sn-egret.html
http://www.mbr-pwrc.usgs.gov/Infocenter/i1970id.html
http://www.tpwd.state.tx.us/nature/wild/vertebrate/birds/bcnheron.htm
http://www.mbr-pwrc.usgs.gov/Infocenter/i2020id.html

Sea Birds

Background

Sea birds feed primarily in saltwater. Some of the species in this category, such as albatrosses and frigatebirds, are so well adapted to the marine environment that they spend most of their lives at sea, returning to land only to nest; others, such as gulls and terns are confined to the interface between land and sea, feeding during the day and loafing and roosting on land. The Department tracks a number of populations of these birds, including, the laughing gull (*Larus atricilla*), the herring gull (*Larus argentatus*), and the Forster's tern (*Sterna forsteri*).

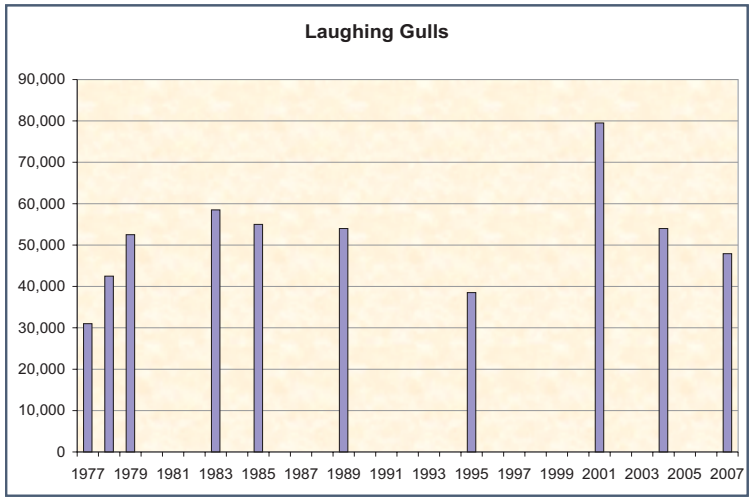
Gulls are robust birds with webbed feet, long wings and a slightly hooked beak. They all possess exceptional flying ability and can often be seen swimming, and occasionally diving underwater. Increasing gull populations in North America during the past century have led to a variety of problems for different segments of society. Gulls can cause damage to agricultural crops and threaten human safety at and near airports; they are involved in more collisions with aircraft than any other bird group due to their high numbers and wide distribution. They are also often considered a nuisance species due to their propensity to nest near human populations and seek food from people eating out-of-doors. In addition, gulls are predators of several seabirds during the breeding season; expanding and colonizing gull populations may have detrimental affects on the breeding performance of these other, often preferred, species.[4]

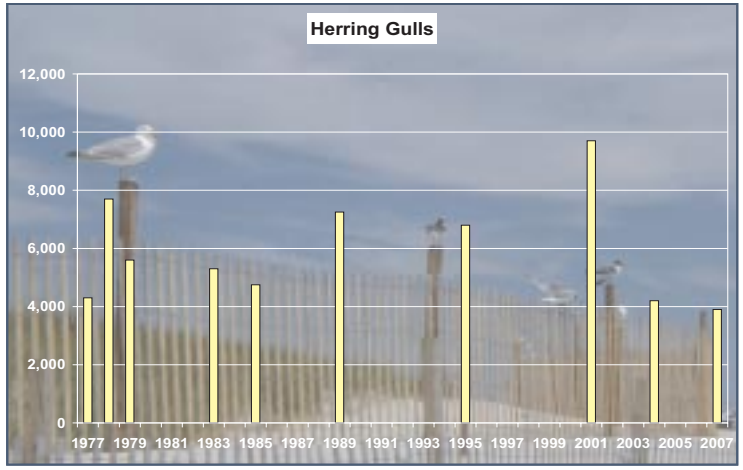
The laughing gull is a small, black-hooded gull; its light, buoyant flight and lilting, laughing call are a familiar sight and sound along New Jersey's coast.[5] Laughing gulls breed in coastal marshes and ponds in large colonies. The nest, made largely from grasses, is constructed on the ground, and the 3 or 4 greenish eggs are incubated for about three weeks.[6] The herring gull, a large white bird with light gray back and wings, pink legs and a yellow beak with a red dot at the tip, is a year-round resident of New Jersey. This species, like the laughing gull, also generally nests in large colonies. Both species are generalist predators and will feed on a variety of fishes, invertebrates and other seabirds; they can also be opportunistic scavengers, feeding on carrion and human refuse. This characteristic has made it possible for the population of these gulls to increase, displacing smaller terns from their traditional nesting areas. [7]

Terns are medium-sized birds, typically with grey or white plumage and black markings on the head, longish bills, deeply forked tails and orange webbed feet. They are lighter bodied and more streamlined than gulls. Forster's tern breeds primarily in marshes, including wetter portions of lakes and streams; along New Jersey's coast, this species can also be found in the marshy portions of beaches and estuarine areas. The Forster's tern's diet consists mainly of small fish and occasional invertebrates. During hunting, this species dives directly into water from heights, which can be as high as eight meters above the water surface. [8]

Trends

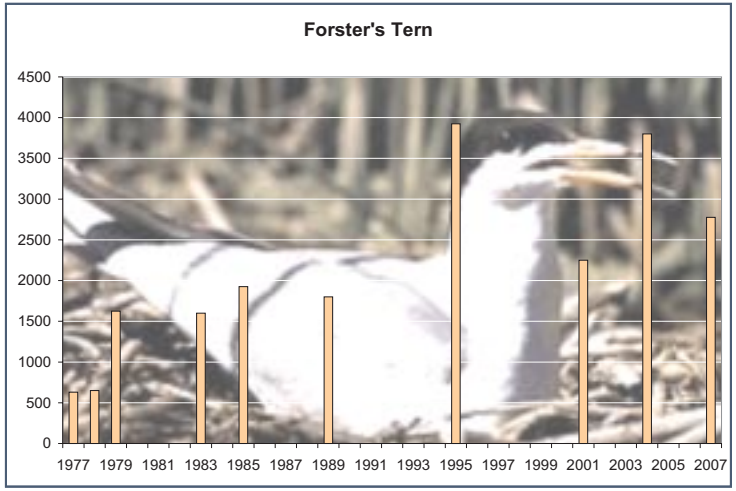
The figures below show the number of individuals for each species by year. The data, collected by DEP's Division of Fish and Wildlife Program, show fluctuations from year to year, with especially large numbers in 2001, but no clear long-term trends are apparent.[9]





Outlook and Implications

While the populations of seabirds appears to be on the rise, they nevertheless face a steady barrage of threats, including oil pollution associated with increased tanker traffic, direct mortality from entanglement and drowning in commercial fishing gear, the depletion of fish due to overfishing, and predation of colonies by introduced predators. In the future sea level rise could also become a limiting factor for these ground-nesting species.



More Information

http://www.birds.cornell.edu/AllAboutBirds/
http://www.mbr-pwrc.usgs.gov/id/framlst/infocenter.html
http://www.enature.com/fieldguides/view_default.asp?curGroupID=1&shapeID=957

References

[1] http://www.fws.gov/birds/Waterbird-Fact-Sheet.pdf

[2]http://www.tpwd.state.tx.us/nature/wild/vertebrate/birds/bcnheron.htm

[3]Dave Jenkins, Division Of Fish and Wildlife, Endangered and Nongame Species Program, personal communication

[4]http://icwdm.org/handbook/birds/Gulls.asp

[5]Burger, J. 1994. Laughing Gull. In A. Poole, P. Stettenheim, and F. Gill, editors. The Birds of North America, no. 124. Academy of Natural Sciences, Philadelphia, Pennsylvania; and American Ornithologists' Union, Washington, D.C.

[6]http://www.surfbirds.com/namericanbirds/gull-tern.html

[7]Pierotti, R. J. and T. P. Good. 1994. Laughing Gull. In A. Poole, P. Stettenheim, and F. Gill, editors. The Birds of North America, no. 124. Academy of Natural Sciences, Philadelphia, Pennsylvania; and American Ornithologists' Union, Washington, D.C.

[8]McNicholl, M. K., P. E. Lowther, and J. A. Hall. 1994. Laughing Gull. In A. Poole, P. Stettenheim, and F. Gill, editors. The Birds of North America, no. 124. Academy of Natural Sciences, Philadelphia, Pennsylvania; and American Ornithologists' Union, Washington, D.C.

[9]Dave Jenkins, Division Of Fish and Wildlife, Endangered & Nongame Species Program, personal communication